
Articles

Ethnic Differences in Use of Inpatient Mental Health Services by Blacks, Whites, and Hispanics in a National Insured Population

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Objective. We examine whether ethnic differences in use of inpatient mental health services exist when the usually confounding effects of minority status and culture are minimized or controlled.

Data Sources and Study Setting. Secondary analyses were conducted using a national insurance claims database for 1.2 million federal employees and their dependents insured by the Blue Cross/Blue Shield (BC/BS) Federal Employees Plan (FEP).

Study Design. The Andersen-Newman model of health utilization was used to analyze predisposing, enabling, and need variables as predictors of inpatient mental health utilization during 1983. The study design was cross-sectional.

Data Collection. The study database was made up of BC/BS insurance claims, Office of Personnel Management employee data, and Area Resource File data.

Principal Findings. No significant differences were found among blacks, whites, and Hispanics in the probability of a psychiatric hospitalization or in the number of inpatient psychiatric days. Regression analyses revealed younger age and psychiatric treatment of other family members as significant predictors of a hospitalization; region of residence, younger age, hospital bed availability, and high option plan enrollment were significant predictors of the number of treatment days.

Conclusions. Ethnic differences in use of inpatient mental health services were not significant in this generously insured population. Further research involving primary data collection among large and diverse samples of ethnic individuals is needed to fully examine the effects of cultural and socioeconomic differences on use of mental health services.

Keywords. Ethnicity, mental health services, utilization, psychiatric hospital, insurance benefits

Although the literature on ethnicity and mental health has expanded considerably over the past two decades, few studies have examined and compared the use of inpatient mental health services by members of various ethnic groups. These studies have generally found that blacks are "overrepresented" in mental hospitals relative to their proportion in the population and that Hispanics and Asian Americans have usually been "underrepresented" (Sue 1977; Lindsey and Paul 1989; Dunn and Fahy 1990; Snowden and Cheung 1990; Lopez 1981). For example, while blacks comprised 11.7 percent of the U.S. population, they represented 21 percent of inpatient mental health services users in 1983. Hispanics constituted 6.4 percent of the U.S. population but only 3.8 percent of persons receiving inpatient mental health treatment (Cheung and Snowden 1990).

Studies of ethnic differences in rates of psychiatric hospitalization tend to yield inconsistent findings. Admission rates to state and county mental hospitals in the United States in 1980 were virtually the same for whites and Hispanics, but were 2.7 times higher for blacks (Rosenstein et al. 1987). Admission rates to nonfederal general hospitals were also higher for blacks, but private hospital psychiatric admissions rates were roughly equal for blacks and whites and lower for Hispanics (Rosenstein et al. 1987). Virtually the same pattern—approximately equal one-year psychiatric hospitalization rates for blacks and whites and lower rates for Hispanics—was found in the Epidemiologic Catchment Area (ECA) studies, sponsored by the National Institute of Mental Health (NIMH) and conducted in the early 1980s at five sites around the United States. Lifetime psychiatric hospitalization rates from the ECA data were highest for whites—4 percent compared to 3.5 percent for blacks and 2.1 percent for Hispanics (R. Wagner, personal communication 1992).

Ethnic differences in amount of use or length of psychiatric hospital stay appear to be minimal. Studies by Temkin-Greener and Clark (1988) and by Hu et al. (1991) found no significant ethnic differences in inpatient psychiatric days. It should be cautioned that both of these studies included only low-income populations; little is known about length of stay among insured middle-income patients from diverse ethnic backgrounds.

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Any attempt to explain ethnic differences in use of inpatient mental health services must consider socioeconomic and systemic factors related to minority group status; these include poverty, ethnic discrimination and associated negative attitudes about psychiatric treatment, and a lack of community-based alternatives to hospitalization. Support for this perspective comes from studies that have found it more likely that members of ethnic minorities will be diagnosed (or in some cases misdiagnosed) with severe mental illness (Flaskerud and Hu 1992a; Adebimpe 1981; Sue and Sue 1987; Jones and Gray 1986; Mukherjee, Shukla, and Woddle 1983; Kramer, Rosen, and Willis 1973) and therefore more likely will be hospitalized than their white counterparts (Rosenfield 1984). At the same time, cultural differences have frequently been invoked to explain Hispanic underuse of mental health services (Meinhardt and Vega 1987; Rodriguez 1987).

This discussion raises a number of questions addressed by this study: (1) Are there differences in use of inpatient mental health services among blacks, whites, and Hispanics when socioeconomic differences are minimized and when insurance benefits are relatively generous? Do members of these groups differ in use of inpatient facilities when many barriers of access and of language are minimized? (2) What characteristics of blacks, whites, and Hispanics are associated with the likelihood of a psychiatric hospitalization and with the number of inpatient days of treatment? Do these differ across ethnic groups? (3) Do modest differences in benefit plans, such as premium costs, deductibles and limits on hospital days, have any effect on utilization of inpatient mental health services by members of these ethnic groups?

Our insurance claims database, consisting of over 1.2 million federal employees and their family members insured by Blue Cross/Blue Shield in 1983, affords a rare opportunity to examine these research questions using a large national population of blacks, whites, and Hispanics. Unlike facility-based survey data, the Federal Employee Plan (FEP) database allows us to estimate per capita use rates as well as the number of days individuals were hospitalized. Finally, all sites of inpatient psychiatric treatment are included, whether in public hospitals, in private hospitals, or in the psychiatric beds or units of general hospitals.

There is some evidence that ethnic differences in use of mental health services persist even when socioeconomic differences and insurance coverage are controlled. Analyzing a sample of adult employees enrolled in the high option of the FEP during 1979–1981, Scheffler and Miller (1989) found higher rates of psychiatric hospitalization for blacks and Hispanics compared with whites. In this study, we examined all black, white, and Hispanic persons enrolled in the FEP two years later (during 1983), including dependent children and adolescents, survivor annuitants, and retirees, as

well as adult federal employees. We also included persons enrolled in both the high and low options of the FEP to analyze whether these two levels of insurance coverage had different effects on utilization across ethnic groups.

METHOD

DESCRIPTION OF THE FEDERAL EMPLOYEES BLUE CROSS/BLUE SHIELD INSURANCE CLAIMS DATABASE

This study used insurance claims and related enrollment data from federal employees and their family members who were insured by the Blue Cross and Blue Shield (BC/BS) Association's Federal Employees Plan (FEP) in 1983. Information obtained from the Office of Personnel Management employee files included education, salary, and ethnic designation of the insured federal employee. The Bureau of Health Professions Area Resource File (ARF) provided county level data on the availability of psychiatric services and on the ethnic composition of the county.

Ethnic group designation was classified as black, white, or Hispanic. There were insufficient numbers of Asian Americans and Native Americans for analysis, and subgroups of Hispanics were not identified in the database. In 1983, there were 136,152 black claimants, 30,103 Hispanic claimants, and 785,487 white claimants. (A claimant is a person who filed at least one claim in the year for any type of medical service.)

For inpatient mental health care, FEP paid 100 percent of up to 60 days of treatment per year for those enrolled in the high option and 100% of up to 30 days per year for those enrolled in the low option. A \$50 deductible per admission applied to high-option enrollees and a \$100 deductible per admission applied to low-option enrollees. Out-of-pocket premium costs amounted to 118 dollars per month for high-option enrollees and 32 dollars per month for low-option enrollees.

The study sample was composed of all persons who had at least one inpatient psychiatric day in 1983 ($N = 7,768$) and a random sample of individuals who did not use inpatient or outpatient mental health services (i.e., nonusers). Random samples of approximately 5,000 nonusers were selected within each ethnic group. In subsequent analyses, these samples were weighted to estimate the total number of persons who did not have inpatient mental health treatment during the year.

The preexisting structure of the database required that only long-term enrollee families were included—individuals in families enrolled for at least five years. An advantage of this restriction was that it minimized the risk of

bias due to “adverse selection” (whereby families with individuals in greater need are likely to choose, or reject, plans on that basis).

PREDICTORS OF PROBABILITY AND AMOUNT OF USE OF INPATIENT MENTAL HEALTH SERVICES

Following the Andersen and Newman (1973) model of factors explaining health service utilization, three sets of independent variables were developed. Predisposing factors included sociodemographic characteristics of sex, age, the employee’s number of years of education, and family size, and the percentage of the county that was black, Hispanic, or white. The latter consisted of three continuous variables—one of each selected for the separate analyses of each ethnic group—that indicated the level of ethnic congruity in the surrounding community of the index person. Tweed, Goldsmith, Jackson, et al. (1990) found that persons residing in areas characterized by numerical dominance of own-group members manifested lower levels of psychological distress when compared with persons living in racially mixed, or “dissonant” areas. We reasoned that the level of ethnic congruence in one’s geographic area might also influence the decision to seek mental health care.

Enabling factors included region of the country, salary of the employee, and whether the employee had chosen the high or low option. Region of country was considered enabling since the availability of mental health services and of providers varies considerably across these areas (Knesper, Wheeler, and Pagnucco 1984). Three enabling variables were available from the ARF to provide county level measures of the relative availability of inpatient mental health services: (1) the percent urban, (2) the ratio of the number of psychiatrists to the number of physicians, and (3) the number of hospital beds available in the county.

The insurance claims in the FEP database do not provide direct measures of need factors such as mental diagnoses. However, several variables were useful as indicators of risk factors of the need for mental health treatment. These included the person’s total annual medical expenses, the rest of the family’s total annual medical expenses, whether anyone else in the family received inpatient psychiatric treatment during the year, and the sum of all outpatient mental health visits made by other family members.

DEPENDENT VARIABLES: PROBABILITY AND AMOUNT OF USE OF INPATIENT MENTAL HEALTH TREATMENT

Following previous analyses of mental health utilization (Horgan, 1986; Scheffler and Miller 1989; Taube, Kessler, and Burns 1986; Wells, Manning,

Duan 1982), probability of use and amount of use were the two dependent variables in the study. The first dependent variable was coded "1" if the individual had a claim for at least one inpatient day coded "Nervous and Mental" during the year, and "0" otherwise. The second dependent variable was the number of inpatient psychiatric days that the person had during the year. Only users of inpatient mental health services were included in analyses of this variable.

DATA ANALYSIS

Weighted logistic regression models were developed separately for each ethnic group using the logit procedure of Systat (Steinberg and Colla 1991) to predict the probability of at least one day of psychiatric hospitalization. The Systat procedure allows the use of random samples for one or both of the dichotomous groups, and provides a weighting procedure for properly analyzing these samples. For predicting the number of inpatient days, ordinary least squares (OLS) regression was used.

Variables were entered into the regression equation following hierarchical procedures recommended by Cohen and Cohen (1983) and were ordered according to the Andersen-Newman model: the predisposing variables first, then the enabling variables, and finally the need variables. Within each set, variables were entered hierarchically according to presumed causal priority. In cases where no causal priority could be inferred, all such variables were entered into the regression equation at the same time.

Tests of ethnic group differences in psychiatric hospitalization rates were made by extending the "protected *t*" method described by Cohen and Cohen (1983, 167) to logistic regression. Significant ethnic group differences in the average number of inpatient days were tested using the Tukey-Kramer method of multiple comparisons (Neter, Wasserman, and Kutner 1985). Significance tests used the .05 level of alpha.

RESULTS

SOCIODEMOGRAPHIC CHARACTERISTICS OF THE POPULATION

As shown in Table 1, women outnumbered men in each ethnic group; the proportion of men was lowest among blacks. Average age was highest for whites, followed by blacks and Hispanics. Regional distributions differed considerably, with whites fairly evenly distributed, Hispanics heavily concentrated in the South and West, and blacks residing disproportionately in the Washington, DC area followed by the South and North Central states.

Table 1: Sociodemographic Characteristics of Federal Employees Plan Claimants by Ethnic Group

<i>Characteristic</i>	<i>Blacks</i> (N = 136,152)*	<i>Hispanics</i> (N = 30,103)*	<i>Whites</i> (N = 785,487)*
Sex			
Male	42.6%	47.2%	47.7%
Female	57.4%	52.8%	52.3%
Age			
0-17	17.3%	21.6%	15.5%
18-45	28.9%	24.7%	24.4%
46≥	53.8%	53.7%	60.1%
Average age	42.8	41.5	45.8
Region			
Washington, DC area	42.2%	4.2%	22.3%
Northeast	9.9%	3.1%	17.9%
North Central	19.9%	3.7%	19.2%
West	6.1%	34.4%	12.7%
South	21.9%	54.7%	28.0%
High vs. low option			
Low option	23.6%	23.6%	41.9%
High option	76.4%	76.4%	58.1%
Years of education of employee			
<12 years	28.0%	35.7%	11.9%
High school graduate	49.3%	43.4%	50.1%
Some college	12.2%	10.4%	10.5%
College graduate	10.5%	10.5%	27.4%
Average years of education of the employee	11.8	11.3	13.2
Average salary of the employee	\$21,973	\$23,201	\$28,456

*Data in this table were weighted to represent the total *Ns* shown in parentheses. Because 100 percent of those with psychiatric hospitalization were sampled, no weighting was required for persons in this group. Those without psychiatric hospitalization were weighted to represent the total population of nonhospitalized persons.

Blacks and Hispanics were equally and more likely to be enrolled in the high-option plan (76.4 percent); 58.1 percent of whites chose this option. Whites also differed from blacks and Hispanics in having more years of education and higher salaries (see Table 1).

RATES OF INPATIENT MENTAL HEALTH SERVICES UTILIZATION

Table 2 shows the percentage of each ethnic group with at least one day of inpatient psychiatric treatment during 1983 and the average number of days of treatment for those hospitalized. There were no statistically significant

ethnic group differences in hospitalization rates, although overall rates were highest for Hispanics, followed by blacks, and lowest for whites. Cross-ethnic-group rates were also not significantly different for the various demographic subgroups. It should be noted that the small number of Hispanics in several of the demographic subgroup categories may have reduced the power of some of the statistical significance tests.

Some noteworthy within-group differences in hospitalization rates are shown in Table 2. Gender differences are minimal for Hispanics and whites but marked for blacks where men's hospitalization rates exceed those of women. Age distributions show the familiar pattern of highest rates among young to middle-aged adults, although rates for Hispanics age 46 years and older are higher than those of blacks and whites in that age group. Regional variation in rates across the three groups reveals fairly even distributions for blacks and whites, with a general trend for the highest rates of hospitalization to be found in the southern states. This trend is particularly marked for Hispanics. While 54 percent of all Hispanics resided in the South, 71 percent of all hospitalized Hispanic persons resided there.

As shown in Table 2, rates of hospitalization were higher for high-option enrollees in all ethnic groups. Rate distributions broken down by educational level of the federal employee show few notable differences with the exception of slightly higher rates among less-educated Hispanics and whites.

NUMBER OF INPATIENT DAYS

In examining inpatient days, no statistically significant differences were found in the overall mean number of days across the three ethnic groups (Table 2). The overall average was lowest for whites at 18.9 days, and highest for Hispanics at 20.2 days.

Statistically significant differences were found among some of the demographic subgroups. Black women had significantly more hospital days than white women, averaging about two more days of psychiatric treatment. Ethnic group regional differences included the following: within the Washington, DC area, whites averaged significantly more inpatient days than blacks; in the North Central region, blacks had significantly more inpatient days than whites; in the South, Hispanics had significantly more inpatient days than either whites or blacks. Among persons with some college education, Hispanics had significantly more inpatient days than whites, averaging about ten more days of treatment.

Examination of within-group variation shows that gender differences were minimal for Hispanics and whites but noteworthy for blacks; black women averaged four more days of hospitalization than black men. Age

Table 2: Percent of Federal Employees Plan Claimants Hospitalized with a Psychiatric Diagnosis and Mean Total Days during the Year for Those Hospitalized

Characteristic	Blacks (N = 136,152)			Hispanics (N = 30,103)			Whites (N = 785,487)		
	N in Hospital	Percent [§]	Mean Days	N in Hospital	Percent [§]	Mean Days	N in Hospital	Percent [§]	Mean Days
Overall	1,322	0.97	19.3	329	1.09	20.2	6,117	0.78	18.9
Sex									
Male	649	1.12	17.2	155	1.09	20.8	2,787	0.74	18.1
Female	673	0.86	21.4	174	1.09	19.6	3,330	0.81	19.6*
Age									
0-17	111	0.47	28.7	39	0.60	20.7	551	0.45	27.3
18-45	633	1.61	19.2	106	1.42	22.0	1,973	1.03	20.7
46≥	578	0.79	17.7	184	1.14	19.0	3,593	0.76	16.6
Region									
DC area	552	0.96	19.5	9	0.72	18.0	1,297	0.74	22.5*
Northeast	119	0.88	22.4	3	0.33	31.0	892	0.63	21.2
North Central	278	1.03	21.3	7	0.63	11.9	1,140	0.76	18.3*
West	67	0.81	16.7	75	0.72	16.7	678	0.68	15.9
South	306	1.03	16.6	235	1.43	21.5	2,110	0.96	17.0†,‡
Option									
Low option	217	0.68	16.2	43	0.61	15.3	1,456	0.44	14.6
High option	1,105	1.06	19.9	286	1.24	20.9	4,661	1.02	20.3
Years of education of employee									
<12 years	298	0.88	18.6	133	1.35	19.6	820	0.98	17.6
High school graduate	617	1.04	18.9	124	1.04	19.9	2,694	0.76	18.3
Some college	129	0.88	19.4	25	0.88	27.8	625	0.84	18.3†
College graduate	112	0.89	21.5	14	0.48	15.5	1,276	0.66	20.4

The sums of those who had inpatient treatment across education groups are 1,156, 296, and 5,415 for blacks, Hispanics, and whites, respectively, because not all persons were in contracts that were able to be matched to the database from which education was obtained. (Office of Personnel Management)

*Whites and blacks were significantly different in the number of inpatient days, .05 level of alpha.

†Whites and Hispanics were significantly different in the number of inpatient days, .05 level of alpha.

‡Blacks and Hispanics were significantly different in the number of inpatient days, .05 level of alpha.

§There were no statistically significant ethnic group differences in percent hospitalized overall or within subgroups.

distributions were almost identical for blacks and whites, with the highest levels of use found among children under 17 years; Hispanics did not manifest this pattern. Regional distributions show longer stays in the Northeast states for all three groups. Hispanics showed the greatest regional variation but their numbers outside of the South were very low and, therefore, not necessarily representative. Enrollment in the high option was associated with higher levels of use—3.7 more days on the average for blacks and about 5½ more days on the average for whites and Hispanics. Interestingly, the average number of days increases with the educational level of the federal employee among blacks and whites. For Hispanics, persons with some college education had the highest levels of use, averaging 27.8 days of hospitalization compared with 16 days for college graduates and about 20 days for their less-educated counterparts.

PREDICTING THE PROBABILITY OF A PSYCHIATRIC HOSPITALIZATION

Table 3 shows the results of the logistic regression analyses conducted separately for each group. Using an alpha level of .05 or less, only the age contrasts were statistically significant in predicting the likelihood of psychiatric hospitalization for blacks. For example, 18- to 45-year-old blacks had 1.5 times the odds of a hospitalization as their over-45 counterparts. For Hispanics, only inpatient mental treatment of other family members was statistically significant. Hispanic persons who had family members hospitalized for mental problems were 4.46 times more likely to be hospitalized themselves than were persons with no family members hospitalized for mental problems. For whites, high-option enrollment and the number of outpatient mental health visits by other family members were significant predictors. Thus, persons in the high option were 2.43 times more likely to be hospitalized than their low-option counterparts.

PREDICTING THE NUMBER OF INPATIENT PSYCHIATRIC DAYS

As shown in Table 4, higher numbers of inpatient days among blacks were significantly predicted by female gender, age under 18, residence in the northeastern states or in the Washington DC area (contrasted with the South), high-option enrollment, and availability of hospital beds in the county. By contrast, the only predictor significant for Hispanics was psychiatric hospitalization of other family members.

For whites, significant predictors of more inpatient psychiatric days included: female gender, younger age, higher educational level of the federal employee, lower percentage of whites in the county, residence in the Washington, DC area versus all other regions except the Northeast, the

Table 3: Prediction of Probability of Use of At Least One Inpatient Mental Health Day, Federal Employees Plan Claimants, 1983

Characteristic	Blacks		Hispanics		Whites	
	Odds Ratio	Significance	Odds Ratio	Significance	Odds Ratio	Significance
<i>Predisposing factors</i>						
1. Sex (m = 0; f = 1)	0.77	.300	1.00	.993	1.09	.687
2. Age 0-17 vs. older	0.54	.045	0.60	.067	0.64	.076
2. Age 18-45 vs. 46≥	1.47	.005	1.12	.439	1.16	.205
3. Education, employee	0.98	.726	0.93	.108	0.96	.387
4. Family size	0.98	.900	0.89	.465	0.90	.455
5. Ethnic percent in county	1.00	.849	1.01	.193	1.00	.501
<i>Enabling factors</i>						
6. Northeast vs. DC	0.99	.982	0.33	.493	0.90	.784
6. North Central vs. DC	1.16	.692	0.70	.772	1.09	.817
6. West vs. DC	0.93	.913	0.70	.692	0.93	.868
6. South vs. DC	1.12	.736	1.30	.775	1.32	.381
6. Percent urban in county	1.00	.947	1.01	.250	1.00	.701
7. Salary (\$10,000)*	0.83	.355	0.72	.156	0.93	.528
8. High option? (yes = 1)	1.74	.117	1.88	.118	2.43	.001
9. No. hospital beds (1,000)*	1.00	.862	1.02	.462	1.00	.918
10. Psych.-phys. ratio (.1)*	1.03	.945	0.95	.938	0.95	.884
<i>Need factors</i>						
11. Medical dollars, index person (\$5,000)*	1.06	.303	1.13	.114	1.06	.061
12. Medical dollars, others in family (\$5,000)*	1.01	.966	1.13	.082	1.00	.968
13. Outpatient mental health visits, others*	1.32	.231	1.37	.340	1.39	.019
14. Inpatient mental health, others? (yes = 1)	1.89	.445	4.46	.015	2.74	.147

*Coefficients and standard errors were calculated for (1) salary in units of \$10,000, (2) psychiatrist to physician ratio in units of .1, (3) total medical charges for the index person and for the rest of the family in units of \$5,000, (4) number of hospital beds in units of 1,000, and (5) outpatient mental health visits for others in the family in units of 10 visits.

percentage of the population in the county that was urban, high-option enrollment, the number of hospital beds in the county, and use of outpatient and inpatient mental health treatment by other family members.

DISCUSSION

This study examined ethnic differences in use of inpatient mental health services in a large national population when the usually confounding effects

Table 4: Prediction of Number of Inpatient Psychiatric Days Federal Employees Plan Claimants Had in 1983

Characteristic	Blacks (N = 1,322)		Hispanics (N = 329)		Whites (N = 6,117)	
	B	s.e.	B	s.e.	B	s.e.
<i>Predisposing factors</i>						
1. Sex (m = 0; f = 1)	4.13‡	0.94	-1.17	1.97	1.54‡	0.44
2. Age 0-17 vs. older	7.03‡	1.11	0.19	2.04	5.89‡	0.51
2. Age 18-45 vs. 46≥	0.69	0.48	1.52	1.09	2.11‡	0.24
3. Education, employee	0.00	0.21	-0.05	0.37	0.23‡	0.08
4. Family size	0.08	0.63	-1.15	1.32	-0.12	0.29
5. Ethnic percent in county	-0.01	0.02	0.07	0.05	-0.03‡	0.01
<i>Enabling factors</i>						
6. Northeast vs. DC	3.52†	1.80	8.38	12.47	-0.33	0.76
6. North Central vs. DC	1.61	1.37	-9.75	9.28	-3.61‡	0.71
6. West vs. DC	-2.56	2.34	-4.48	7.04	-6.33‡	0.83
6. South vs. DC	-2.63†	1.27	0.47	7.38	-4.54‡	0.62
6. Percent urban in county	-0.02	0.02	0.10	0.07	0.03‡	0.01
7. Salary (\$10,000)*	-0.25	0.72	-0.99	1.59	-0.21	0.21
8. High option? (yes = 1)	3.96‡	1.26	5.71	3.01	6.08‡	0.50
9. No. hospital beds (1,000)*	0.16†	0.67	0.32	0.17	0.12‡	0.04
10. Psych.-phys. ratio (.1)*	0.15	1.81	-0.35	5.59	-0.18	0.67
<i>Need factors</i>						
11. Medical dollars, index person (\$5,000)*	-0.32	0.31	1.80	0.96	0.05	0.12
12. Medical dollars, others in family (\$5,000)*	-0.19	0.40	0.17	0.31	-0.09	0.18
13. Outpatient mental health visits, others*	0.60	0.10	2.40	0.33	1.00‡	0.03
14. Inpatient mental health, others? (yes = 1)	2.35	3.06	9.75†	4.23	3.30†	1.33

*Bs and standard errors were calculated for (1) salary in units of \$10,000, (2) psychiatrist to physician ratio in units of .1, (3) total medical charges for the index person and for the rest of the family in units of \$5,000, (4) number of hospital beds in units of 1,000, and (5) outpatient mental health visits for others in the family in units of 10 visits.

†Variables were statistically significant at the .05 level of alpha, two-tailed test.

‡Indicates significance at .01 level of alpha.

of minority status were minimized or controlled, as well as several predisposing, enabling, and need factors. Perhaps foremost among our findings: there were no significant ethnic differences in the probability of use of inpatient psychiatric treatment or in the number of inpatient psychiatric days in this generously insured population. Although not significantly different statistically, Hispanics had both the highest rates of hospitalization

and averaged the most inpatient days; they were followed by blacks, then whites.

As mentioned earlier, black-white comparisons of one-year rates of psychiatric hospitalization in the ECA studies of the early 1980s also revealed no significant differences; the number of Hispanics hospitalized was too small to allow a rate calculation (R. Wagner, personal communication 1992). Interestingly, while the ECA rates are almost identical to those found for whites in this study (.78% in the FEP versus .80% for blacks and .77% for whites in the ECA), there are considerably higher rates for blacks and Hispanics in the FEP (.97% and 1.09%, respectively).

The pattern of relatively higher use of inpatient psychiatric services by Hispanics runs counter to previous findings regarding "underutilization" of mental health services in this group (Acosta 1979; Lopez 1981; Hough, Landsverk, Karno, et al. 1983; Meinhardt and Vega 1987; Rodriguez 1987; Flaskerud and Hu 1992b). Since Hispanic federal employees are likely to be acculturated in English language ability and in mainstream values, a "cultural difference" explanation is less plausible for this group. Perhaps more importantly, the common association of minority group status with poverty and its social and economic consequences does not apply to this population since all are employed and generously insured. This common base may underlie the roughly equal likelihood of psychiatric hospitalization by members of all three ethnic groups.

Results from this study are consistent with previous studies' findings that the overall amount of inpatient use did not vary significantly across ethnic groups (Hu et al. 1991; Temkin-Greener and Clark 1988). However, all three ethnic groups in this study averaged more days of psychiatric hospitalization than found by Hu et al. (1991) in their study of use of public mental health facilities in two northern California counties during 1987-1988. Hispanics and whites in the FEP population averaged seven more inpatient days per year and blacks averaged ten more inpatient days than their public facility user counterparts in the Hu et al. study. Since it is highly unlikely that the prevalence of severe mental disorders in this largely middle-class population of federal employees exceeds or even equals that of the public service user population studied by Hu et al., it is tempting to infer that having generous insurance benefits is associated with an increased length of stay. The time lapse between these two studies may also be a factor insofar as public psychiatric hospital stays became shorter in the 1980s (Kiesler and Simpkins 1991).

High-option enrollees in all three ethnic groups both had higher probabilities of hospitalization and averaged more days of treatment than low-option enrollees. Higher use under the more generous benefits of the high option was also found by the present authors in recent studies of child

and adolescent utilization of mental health services (Patrick et al. 1993; Padgett, Patrick, Burns, et al. 1993). It should be noted that, in the regression models where other variables were controlled, high-option enrollment significantly predicted probability of hospitalization only for whites and predicted the number of days only for blacks and whites, not for Hispanics. As mentioned earlier, differential sample sizes and loss of statistical power in the smaller groups of blacks and Hispanics may account for some of these findings. Nevertheless, the cumulative result of this and previous studies lends support to the contention that insurance coverage has an effect on both the probability of a psychiatric hospitalization and on the length of stay.

Analyses identifying which predisposing, enabling, and need characteristics of individuals significantly predicted the probability of inpatient psychiatric treatment revealed that, apart from being in the young to middle-aged group, mental health treatment of other family members was the strongest factor, particularly for Hispanics. While it is difficult to explain this finding with the available data, it seems plausible that family members share exposure to the same high levels of stress (Patrick, Padgett, Schlesinger, et al. 1992). At the same time, psychiatrists may be more prone to recommend inpatient treatment for members of the same family when the impact of expensive inpatient treatment is minimized by ample insurance coverage.

For Hispanics, only inpatient treatment of other family members significantly predicted the number of inpatient psychiatric days. For both blacks and whites, female gender and younger age were significant predisposing factors; significant enabling factors included region of residence, high-option enrollment, and the availability of hospital beds. Longer psychiatric hospital stays for children and adolescents have been linked to practice patterns favoring inpatient treatment particularly when private insurance is available (Mason and Gibbs 1992). In this context, it is not surprising in this study that availability of hospital beds and region-specific practice patterns predict the amount of inpatient treatment.

Variables significant in predicting amount of use only for whites included higher education level, lower percentage of whites in the county, and number of outpatient mental health visits by other members of the index person's family. It is intriguing that whites in counties with a lower proportion of white residents average more inpatient psychiatric days. This finding fits with the ethnic congruence approach (Tweed, Goldsmith, Jackson, et al. 1990), since levels of distress are predicted to be higher among whites residing in predominantly nonwhite counties. Of course, higher levels of distress need not necessarily lead to longer inpatient psychiatric stays. This finding could as well reflect local practice patterns attuned to nonwhites and extended to include whites.

We acknowledge some limitations of this study including its exclusion of the poor and uninsured. Whites, blacks, and Hispanics in the FEP population are not fully representative of their counterparts in the general U.S. population where the prevalence of severe mental disorders is reported to be higher (Robins and Regier 1991). Second, it would have been useful had we been able to distinguish between ethnic subgroups such as Puerto Ricans and Mexican Americans among Hispanics. Third, it is possible that some of the differences in utilization between high- and low-option enrollees may be the result of selection whereby those in greater need opt for the more comprehensive coverage plan. Finally, the absence of diagnostic data limits our understanding of the reasons for particular psychiatric hospitalizations. Indeed, the absence of more direct measures of need such as psychiatric history, psychiatric diagnosis, and severity of symptoms may explain why need factors did not play a more significant role in the predictive analyses. However, problems of misdiagnosis of blacks and questions about the cultural validity of psychiatric diagnoses in general (Vernon and Roberts 1982) point to the need for caution even when such data are available. Further, diagnoses registered on claims are often inaccurate and unreliable (Schwartz, Perlman, Paris, et al., 1980).

Claims data do have the advantage over self-report data in showing greater accuracy in documenting utilization, particularly in cross-ethnic studies where underreporting of embarrassing or socially stigmatizing events, such as a psychiatric hospitalization, has been noted (Vernon and Roberts 1982). The FEP database presents further advantages because of its size and national scope.

In comparison to their proportion in the total FEP population, blacks and Hispanics were slightly overrepresented among inpatient mental health services users. While comprising 14.3 percent of the FEP population, blacks made up 17 percent of the inpatient users; Hispanics were 3.2 percent of the population and 4.2 percent of the inpatient users. Whites were 82.5 percent of the FEP population and 78.8 percent of the inpatient users. This pattern of inpatient mental health services use is reversed for use of outpatient mental health services where studies have consistently shown that blacks and Hispanics are underrepresented and whites overrepresented (Padgett et al., 1994; Hu et al. 1991; Scheffler and Miller 1989; Horgan 1985; Vernon and Roberts 1982). Explanations for these patterns of use are of necessity complex, but "overrepresentation" of blacks and Hispanics in inpatient care (relative to their overall proportion in the population, *not* relative to their need for treatment) even among the insured appears related in part to a practitioner bias or misunderstanding of symptoms that leads to a decision to hospitalize rather than offer outpatient treatment. An alternative explanation—that blacks and Hispanics avoid seeking help until

the severity of the illness is advanced—is not supported by previous research (Rosenfield 1984).

Similarities across the ethnic groups appear far more prominently in these findings than do differences. By showing that ethnic differences in use of inpatient psychiatric services tend to fade when socioeconomic status and other factors are controlled, this study lends support to a minority status explanation and undermines explanations based on genetic or attitudinal factors intrinsic to specific ethnic groups. When they are insured, blacks, Hispanics, and whites are about equally likely to be hospitalized for mental problems and, on average, to have about the same length of stay. Previous studies have shown that this is not the case in more broadly representative populations where blacks and Hispanics are disproportionately unemployed, lacking in health insurance, and living in poverty.

More research is needed that would compare large, representative samples of ethnic groups in the United States. Furthermore, in this and other studies of mental health services utilization the “unseen” predictor that is too often omitted is the service delivery system itself, including its main constituents—practitioners, administrators, and policymakers. While we were able to include some variables related to the delivery system, we share in common with other studies a focus on individual patient characteristics.

An emphasis on the service delivery system and on providers is particularly relevant to studying ethnic differences in inpatient psychiatric care, since the decision to hospitalize is less subject to the discretion of individuals and their families than are other decisions about use of outpatient mental health services. While the severity of the mental disturbance is undoubtedly a factor (although misdiagnoses may enter into the picture here), both the availability of hospital beds and the level of insurance coverage were found to influence the length of stay for blacks and whites (although not for Hispanics) in this study. Particular attention should be given to in-depth studies of clinical decision making and other factors that can lead to higher rates of psychiatric hospitalization for members of some ethnic minority groups.

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